

## CLAIMS

1. Active-matrix image display device comprising:

- several light emitters ( $E_{jn}$ ,  $E_{in}$ ,  $E_{im}$ ) forming an array of emitters distributed in rows and in columns,

5 - means for controlling the emission of the light emitters of the array, comprising:

- for each light emitter ( $E_{jn}$ ,  $E_{in}$ ,  $E_{im}$ ) of the array, a current modulator ( $M_{im}$ ) capable of controlling the said emitter, and comprising a source electrode, a drain electrode, a gate electrode and a trip threshold voltage ( $V_{th}$ ), the trip threshold voltage ( $V_{th}$ ) varying from one modulator ( $M_{im}$ ) to another,

10 - column address means capable of addressing the emitters of each column of emitters ( $E_{in}$ ,  $E_{im}$ ) by applying a data voltage ( $V_{data,i}$ ) to the gate electrode of their modulators ( $M_{in}$ ,  $M_{im}$ ) in order to control them,

15 - row select means capable of selecting the emitters of each row of emitters ( $E_{jn}$ ,  $E_{in}$ ) by applying a select voltage ( $V_{select,n}$ ),

- compensation means ( $A_{in}$ ,  $A_{jn}$ , 11, 21) for compensating for the trip threshold voltage ( $V_{th}$ ) of each modulator ( $M_{im}$ ),

characterized in that:

20 - the compensation means comprise at least one operational amplifier, the feedback of this operational amplifier being capable of compensating for the trip threshold voltage of at least one modulator whatever the value of the said voltage, and

- the said amplifier having an inverting input (-), a non-inverting input (+) and an output terminal, and

25 - the non-inverting input (+) of the operational amplifier being connected to a column address means controlling the said modulator, and

- the inverting input (-) of the operational amplifier being connected to the source electrode of the said modulator, and

30 - the output of the operational amplifier being connected to the gate electrode of the said modulator.

2. Image display device according to Claim 1, characterized in that the control means comprise, for the said modulator associated with an emitter, at least a first control switch (I1) connected between the output of the operational amplifier ( $A_{in}$ , 11, 21) and the gate electrode of the said modulator ( $M_{in}$ ), the first

switch having a gate electrode capable of receiving the row select voltage ( $V_{select,n}$ ) for this emitter ( $E_{in}$ ).

3. Image display device according to Claim 2, characterized in that the control means comprise, for the said modulator associated with an emitter, a 5 second control switch (I2) connected between the inverting terminal (-) of the operational amplifier ( $A_{in}$ , 11, 21) and the source electrode of the modulator (M), the second switch (I2) having a gate electrode connected to the gate electrode of the said first switch (I1) in order to receive, synchronously, the select voltage ( $V_{select}$ ).

10 4. Image display device according to either of Claims 2 and 3, characterized in that the row select means are capable of supplying a gate electrode of at least one of the said first switches in order to select at least one emitter ( $E_{in}$ ) in this row.

15 5. Image display device according to any one of the preceding claims, characterized in that the compensation means comprise an operational amplifier ( $A_{in}, 11, 21$ ) capable of compensating for the trip threshold voltage ( $V_{th}$ ) of all of the modulators ( $M_{in}, M_{im}$ ) controlling the emitters ( $E_{in}, E_{im}$ ) of a column.

20 6. Image display device according to any one of Claims 3 to 5, characterized in that the modulators ( $M_{in}$ ) and the first (I1) and second (I2) control switches are components fabricated in thin-film polysilicon or thin-film amorphous silicon.

7. Image display device according to any one of the preceding claims, characterized in that the modulators ( $M_{in}$ ) are n-type transistors and in that their drain is supplied by a supply means ( $V_{dd}$ ).

25 8. Image display device according to any one of Claims 1 to 6, characterized in that the modulators ( $M_{in}$ ) are p-type transistors and in that the control means furthermore include a passive component (R) placed between the source and a supply electrode ( $V_{dd}$ ) of the modulator ( $M_{in}$ ).

30 9. Image display device according to any one of the preceding claims, characterized in that each emitter (E) is an organic light-emitting diode.

10. Circuit for controlling a current modulator (M) having an undefined trip threshold voltage ( $V_{th}$ ), the circuit including trip threshold voltage compensation means,

characterized in that the trip threshold voltage compensation means comprise at least one operational amplifier (11,21), the output of which is connected to the gate electrode of the said modulator and the inverting input (-) of which is connected to the source electrode of the said modulator, and the feedback of which compensates for the trip threshold voltage of the modulator so that the intensity of the drain current flowing through the modulator (M) is independent of the trip threshold voltage ( $V_{th}$ ) of the modulator (M).